

REMARKS

Claims 1-9 are all the claims pending in the application.

Entry of the Amendment is hereby requested along with review and reconsideration on the merits.

Allowed/Allowable Claims

Applicants kindly appreciate the Examiner's allowance of claims 1-8 and allowability of claim 9 if the 35 U.S.C. § 112, second paragraph, rejection is withdrawn, given that no reference rejections have been applied thereto.

Formal Matters

Applicants appreciate that the Examiner has acknowledged Applicants' claim for foreign priority and receipt of certified copies of the priority documents on the Office Action Summary sheet.

Applicants likewise appreciate that the Examiner has forwarded the Draftsperson's approval of the Submission of Formal Drawings on August 7, 2001.

Please kindly consider the Submission of Formal Drawings, submitted concurrently herewith, replacing previously submitted formal drawings for Figures 10 and 13.

Information Disclosure Statement

Applicants kindly thank the Examiner for returning an initialed and signed copy of the Information Disclosure Statement, Form PTO 1449, submitted to the Patent Office on August 7, 2001.

AMENDMENT Under 37 C.F.R. § 1.111
U.S. Application No.: 09/838,343

However, the Examiner has not considered three references listed on the Information Disclosure Statement, Form PTO/SB/08 A & B (modified), submitted to the Patent Office on January 9, 2003, noting at the bottom of the form that the three Japanese patent documents were “not considered since no English translation of relevant portions of the references [were] provided.”

Applicants respond as follows.

Applicants submit that the IDS is in compliance with 37 C.F.R. §§ 1.56, 1.97 and 1.98 and that a translation of the references themselves is not required for consideration by the Examiner.

Applicants have complied with the requirements of the MPEP 609 A(3), at page 600-122, and 37 C.F.R. § 1.98. As permitted by MPEP 609 A(3) Applicant has provided to the Examiner a copy of a Japanese Office Action in the corresponding Japanese application which cites the listed references and an English translation indicating the degree of relevance found by the Japanese patent office for these references in the IDS filed on January 9, 2003. Therefore, Applicants submit that no further submission is required, and the references cited therein should be considered without further translation.

Accordingly, Applicants kindly request reconsideration and acknowledgement of the foreign patent documents in the IDS filed on January 9, 2003.

Claim Rejection -35 USC § 112

Claim 9 is rejected under 35 U.S.C. § 112, second paragraph, as assertedly being indefinite.

AMENDMENT Under 37 C.F.R. § 1.111
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Applicants respond as follows.

Applicants disagree with the Examiner that method claim 9 allegedly does not have at least a positive, active step. Applicants submit that the language, for example, "is directly fed" is at least a positive, active step to rebut the Examiner's position. However, in response to the Examiner's rejection, the Applicants desire to advance prosecution of claim 9 and to more clearly state their claimed invention by amending claim 9 as recited in the Appendix. The amendments to claim 9 are non-narrowing, and therefore, do not implicate an estoppel under the Festo decision. They are merely for precision of language.

Accordingly, reconsideration and withdrawal of this rejection under 35 U.S.C. § 112 is respectfully requested.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the local telephone number listed below.

AMENDMENT Under 37 C.F.R. § 1.111
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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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WASHINGTON OFFICE



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PATENT TRADEMARK OFFICE



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Date: June 13, 2003

APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Pages 12-13, the bridging paragraph:

As shown in Fig. 6, a liquid organic monomer 17 stored in a feedstock tank 15 is fed to a feedstock piping 23, and then to an organic monomer vaporization chamber 47 via a liquid mass flow controller 45 at a predetermined rate. On the other hand, a carrier gas 51 is also fed from a carrier gas piping 37 to the organic monomer vaporization chamber 47 via a gas mass flow controller 49. Actually, the timing of feeding the carrier gas and the organic monomer is controlled with solenoid valves (not shown) mounted between the vaporization chamber 47 and the mass flow controllers [23] 45, 49. The liquid organic monomer and the carrier gas are mixed in a mixing nozzle portion 53 of the organic monomer vaporization chamber 47 to form a gas-liquid mixed fluid 55. The diameter of the mixing nozzle portion 53 is rendered smaller than the diameters of the carrier gas piping 37 and the feedstock piping 23, and the fluid is sprayed from the mixing nozzle portion to a vaporization vacuum chamber 57. At this time, owing to the abrupt pressure loss of the mixing nozzle portion 53 and the vaporization vacuum chamber 57, the gas-liquid mixed fluid 55 is converted into an aerosol 58 of the organic monomer having a diameter of 100 μ m or less in the vaporization vacuum chamber 57. With respect to the formation of the aerosol, it is quite important to select the diameter of the mixing nozzle portion 53 and the flow rate of the carrier gas. When the flow rate of the carrier gas is 50 to 500 sccm, the diameter of the mixing nozzle is 1 to 0.2 mm. The gas-liquid mixed fluid may be preheated

to a temperature which is approximately 20°C lower than the polymerization starting temperature of the organic monomer through a block heater [59] 65 near the mixing nozzle portion 53. Or, the carrier gas may be preheated.

Pages 13-14, the bridging paragraph:

A block heater 63 heated at a predetermined temperature is installed in the vaporization vacuum chamber 57, and the aerosol 58 of the organic monomer is heated through the block heater 63. Such an aerosol 58 is vaporized by heating to form an organic monomer gas 41 which is discharged from a vaporized feedstock piping 39 along with the carrier gas. Although a part of the aerosol is adhered to the surface of the block heater 63, this aerosol 58 is also instantaneously vaporized. The resulting organic monomer gas 41 is fed to a reaction chamber via the vaporized feedstock piping 39, activated through RF plasma, and then subjected to a polymerization reaction on a substrate heated at 300°C to 420°C to grow an organic polymer film. A piping heater 59 is wound around the vaporized feedstock piping 39 lest the piping has a temperature which is less than the vaporization temperature of the vaporization vacuum chamber. In this manner, re-liquefaction of the organic monomer gas 41 is prevented.

Page 22, the first full paragraph:

Further, the BCB monomer gas [41] (not shown in Fig. 10) is fed to the plasma polymerization reaction chamber system 73 via a vaporized feedstock piping 39. A plasma polymerization reaction chamber 19 is provided with a shower head 9 that can apply high frequency of 13.56 MHz. The BCB monomer gas is passed through He plasma formed under the shower head 9, and the polymerization reaction is conducted on a substrate 25 mounted on a

substrate heater 27 heated at 300 to 420°C to grow a BCB polymer film. An RF power is 50 to 100 W (0.1 to 0.2 W/cm²).

Pages 22-23, the bridging paragraph:

A heater [59] 79 is wound around the vaporized feedstock piping 39, the plasma polymerization reaction chamber 19 and a discharge piping 31 to prevent re-liquefaction of the organic monomer gas 41. The temperature of the vaporized feedstock piping 39 is the same as the heater heating temperature of the vaporization vacuum chamber 57. For example, when the vaporization temperature of the BCB monomer is set at 190°C, the temperature of the vaporized feedstock piping 39 is set at 190°C. The temperature of the plasma polymerization reaction chamber 19 is lower than the heater heating temperature by approximately 20°C, namely 150 to 170°C. The temperature of the discharge piping 31 is also set at 150 to 170°C. The discharge piping 31 is connected with a discharge pump 21 via a cooling trap 81. Further, for cleaning the inner wall of the plasma polymerization reaction chamber 19, a cleaning gas is introduced from a cleaning gas piping 83 via a cleaning gas mass flow meter. The cleaning gas is a mixed gas of SF₆ and oxygen or ozone which is introduced while an RF power is applied. The cleaning gas may be a mixed gas of a fluorocarbon gas such as CF₄ or C₂F₆ and oxygen or ozone.

IN THE CLAIMS:

The claims are amended as follows:

9. (Amended) A method [for growth of] of growing an insulation film on a substrate, [wherein] comprising: providing a vaporization device for heating an aerosol of liquid organic feedstock to vaporize the liquid organic feedstock through the aerosol [and] to form [the] vaporized organic feedstock [is], and connecting said vaporizing device directly [connected with] to a plasma polymerization reaction chamber, [and] whereby the vaporized organic feedstock [is] feeds directly [fed] to plasma in the plasma polymerization reaction chamber to grow on a substrate an organic polymer film made of the liquid organic feedstock [on a substrate].